

Remarks

Claims 1-24 and 26-32 are pending in the subject application. By this Amendment, Applicant has canceled claims 2 and 16 and amended claims 1, 3, 14, and 17-20. Support for the new claims and amendments can be found throughout the subject specification and in the claims as originally filed. Applicant respectfully asserts that since the amendment to claim 1 is an incorporation of the elements of dependent claims 2 and 16, no new search will be required on the part of the examiner and, therefore, entry and consideration of the amendments presented herein should be granted. The dependency of certain claims has also been corrected in view of the amendment of claim 1. Accordingly, claims 1, 3-15, 17-24, and 26-32 are currently before the Examiner. Favorable consideration of the pending claims is respectfully requested.

As an initial matter, Applicant gratefully acknowledges the Examiner's indication that claims 9, 14, and 15 are allowable over the art of record but are objected to as dependent upon a rejected base claim.

Claims 1-7, 10, 16, 26, 31, and 32 are rejected under 35 USC §103(a) as obvious over Adams (U.S. Patent No. 6,540,781) in view of Thubrikar *et al.* (U.S. Patent No. 6,544,285). The Examiner asserts that it would have been obvious at the time of the present invention to prepare the vessel structure of the Adams patent from a synthetic material in order to arrive at the claimed invention. Applicant respectfully traverses this ground of rejection.

Applicant respectfully asserts that the cited references, taken alone or in combination, do not teach or suggest Applicant's claimed invention. By this Amendment, Applicant has amended claim 1 to incorporate the elements of dependent claims 2 and 16. The homograft of the Adams patent includes the natural ostia from the homograft; however, this does not necessarily provide the optimal site for blood flow and fluid dynamics. There is significant variation in the native location of an ostium such that the ostium can be found at any location along the length of a sinus. Publications in the art show that measurements of ostial locations obtained from cadavers indicate a very wide variation in ostial location on the sinus of the graft. Given the variation in the natural location of the coronary ostia, the random selection of a homograft such as provided in the Adams patent will rarely exhibit the optimal ostial location for blood flow and fluid dynamics. Moreover, the Adams patent does not teach or suggest how one might determine if a homograft has optimal ostial location for

blood flow and fluid dynamics. Thus, the Adams patent does not teach or suggest a graft having ostia located on the sinus that provides for optimal fluid dynamics and blood flow.

The secondary reference, the Thubrikar *et al.* patent, fails to cure the deficiencies of the Adams patent. The Thubrikar *et al.* patent examines fluid flow, but the focus is exclusively on fluid dynamics to reduce wear and tear of the valve and to increase its longevity. The Thubrikar *et al.* patent does not teach or suggest means for optimal fluid dynamics and flow into the coronary arteries and hence there is no teaching or suggestion regarding the optimal placement of the ostia to provide for optimal blood flow into the coronary arteries. The coronary arteries are only briefly mentioned in the Thubrikar *et al.* patent (see column 6, line 62 and column 7, line 51 of the Thubrikar *et al.* patent) to state that they are attached to a “first hole” that is formed in a first sinus and a “second hole” formed in a second sinus. “Ostium” is only mentioned specifically once in the Thubrikar *et al.* patent (see column 11, line 28 of the Thubrikar *et al.* patent), wherein it is stated that “*Each coronary ostium is then sutured to a respective sinus...*” However, there is no teaching or description for a specific attachment position of the ostia to the sinuses in the Thubrikar *et al.* patent.

In regard to claim 3, Applicant notes that the Adams patent teaches that the homograft includes small stubs to the coronary ostium, or as referred to therein “remnants of the right and left coronary arteries” (see column 5, line 59 of the Adams patent). These “remnants” of the Adams homograft are not extensions that can address situations when the patient’s coronary arteries cannot reach the remnants. Claim 3 of the subject application specifies that an artificial vessel is attached to the ostia. Thus, Applicant’s invention provides for an extension that enables an easy connection of the coronary arteries to Applicant’s claimed prosthesis. Neither the Adams patent nor the Thubrikar *et al.* patent teach or suggest artificial vessel extensions connected to the ostia of the graft.

As the Examiner is aware, it is well established in patent law that in order to support a *prima facie* case of obviousness, a person of ordinary skill in the art must find both the suggestion of the claimed invention, and a reasonable expectation of success in making that invention, solely in light of the teachings of the prior art and from the general knowledge in the art. *In re Dow Chemical Co.*, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988). One finds neither the suggestion, nor the reasonable expectation of success, of Applicant’s claimed invention in the cited references. Accordingly, reconsideration and withdrawal of the rejection under 35 USC §103(a) is respectfully requested.

It should be understood that the amendments presented herein have been made solely to expedite prosecution of the subject application to completion and should not be construed as an indication of Applicant's agreement with or acquiescence in the Examiner's position.

In view of the foregoing remarks and amendments to the claims, Applicant believes that the currently pending claims are in condition for allowance, and such action is respectfully requested.

The Commissioner is hereby authorized to charge any fees under 37 CFR §§1.16 or 1.17 as required by this paper to Deposit Account No. 19-0065.

Applicant invites the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephonic interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,



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